

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 45K090
STATION NAME: White River near Plain, WA
WATER YEAR: 2010
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Introduction

Watershed Description

White River originates in the glaciers and snowfields of prominent peaks and ridgelines (White Mountain, Tenpeak Mountain, High Pass, and Buck Mountain) located due south of Glacier Peak, and flows southeast into Lake Wenatchee. The watershed is bound on the east by Chiwawa Ridge and the west by Wenatchee Ridge. Land cover above the gage consists of predominantly coniferous forest, but also includes riparian woodlands, alpine shrubland, montane grassland, and bedrock/talus slopes. Mean annual precipitation across the watershed above this gage location is 107 inches (U.S. Weather Bureau, 1965).

Gage Location

The telemetered stream gaging station on the White River near Plain was installed on September 19, 2002. The gage is located off Forest Service Road 6400, at the Forest Service Road 6434 (Sears Creek) bridge on the left bank. This location is approximately seven river miles upstream from Lake Wenatchee.

Table 1.

Drainage Area (square miles)	149 (USGS, 2014)
Latitude (degrees, minutes, seconds)	47°52'28" N
Longitude (degrees, minutes, seconds)	120°52'15" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	793
Median Annual Discharge (cfs)	382
Maximum Daily Mean Discharge (cfs)	3,490
Minimum Daily Mean Discharge (cfs)	91
Maximum Instantaneous Discharge (cfs)	4,380
Minimum Instantaneous Discharge (cfs)	89
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	2,220
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	200
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Eight discharge measurements were taken, ranging from 191 to 2,123 cfs. Snowmelt runoff began mid-April, and reached its peak on June 3, 2010, after a period of warm weather. The minimum discharge was recorded during baseflow conditions on October 12, 2009. Thanks to a colder and wetter than normal spring, statewide drought declaration discussions ended in early June.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	0.60%
Weighted Rating Error (% of discharge)	13.8%
Total Potential Error (% of discharge)	14.4%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	#702	#601	
Period of Ratings	10/01/2009-06/03/2010	05/11/2010-09/30/2010	
Range of Ratings (cfs)	42.2-12,600	52.8-12,600	
No. of Defining Measurements	15	26	
Rating Error (%)	13.0%	15.2%	

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

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Period of Ratings			
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No. of Defining Measurements			
Rating Error (%)			

Narrative

The water year began with Table 702, carrying over from the previous water year. Beginning in mid-May, Table 702 was phased into Table 601 (a clone of Table 6) across the onset of snowmelt runoff. The rapidly rising stage during this time scoured the control. Table 601 was valid for the remainder of the water year.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	2.70
Maximum Recorded Stage (feet)	10.83
Range of Recorded Stage (feet)	8.13
Number of Un-Reported Days	20
Number of Days Qualified as Estimates	22
Number of Days Qualified as Unreliable Estimates	0

Narrative

Due to the presence of strong sensitivity drift between the logger and the PGI observations, the following equation was applied to the stage record for this water year: $-0.043X + 0.148$ $r^2 = -0.98$. Unreported days were due to an ice-impacted channel in which the stage-discharge relationship was not valid. The stage record was qualified as an estimate for 22 days because they followed periods of ice-impacted data prior to the first observation of an ice free channel.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	None
Range of Modeled Stage (feet)	---
Range of Modeled Discharge (cfs)	---
Valid Period for Model	---
Model Confidence	---

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
None	

Activities Completed

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